PCT/DE2004/002778

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	DE 103 60 844.3 2003-12-20										
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gaaggaacta gtcatatggc tagctggagc caccegcagt tcgaaaaagg cgcctgtaat
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aatacatatc aacacgtt
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Met Ala Ser Trp Ser His Pro Gln Phe Glu Lys Gly Ala Ser Asn Asn
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Thr Tyr Gln
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<400> 8

Met Ala Ser Trp Ser His Pro Gln Phe Glu Lys Gly Ala Ser Asn Asn 1 5 10 15

Thr Tyr Gln His Val Ser Asn Glu Ser Arg Tyr Val Lys Phe Asp Pro 20 25 30

Thr Asp Thr Asn Phe Pro Pro Glu Ile Thr Asp Val Gln Ala Ala Ile 35 40 45

Ala Ala Ile Ser Pro Ala Gly Val Asn Gly Val Pro Asp Ala Ser Ser 50 55 60

Thr Thr Lys Gly Ile Leu Phe Leu Ala Thr Glu Gln Glu Val Ile Asp 70 75 80

Gly Thr Asn Asn Thr Lys Ala Val Thr Pro Ala Thr Leu Ala Thr Arg 85 90 95

Leu Ser Tyr Pro Asn Ala Thr Glu Ala Val Tyr Gly Leu Thr Arg Tyr
100 105 110

Ser Thr Asp Asp Glu Ala Ile Ala Gly Val Asn Asn Glu Ser Ser Ile 115 120 125

Thr Pro Ala Lys Phe Thr Val Ala Leu Asn Asn Val Phe Glu Thr Arg 130 135 140

Val Ser Thr Glu Ser Ser Asn Gly Val Ile Lys Ile Ser Ser Leu Pro 145 150 155 160

Gln Ala Leu Ala Gly Ala Asp Asp Thr Thr Ala Met Thr Pro Leu Lys 165 170 175

Thr Gln Gln Leu Ala Val Lys Leu Ile Ala Gln Ile Ala Pro Ser Lys 180 185 190

Asn Ala Ala Thr Glu Ser Glu Gln Gly Val Ile Gln Leu Ala Thr Val 195 200 205

Ala Gln Ala Arg Gln Gly Thr Leu Arg Glu Gly Tyr Ala Ile Ser Pro 210 215 220

Tyr Thr Phe Met Asn Ser Thr Ala Thr Glu Glu Tyr Lys Gly Val Ile 225 230 235 240

Lys Leu Gly Thr Gln Ser Glu Val Asn Ser Asn Asn Ala Ser Val Ala 245 250 255

Val Thr Gly Ala Thr Leu Asn Gly Arg Gly Ser Thr Thr Ser Met Arg 260 265 270

Gly Val Val Lys Leu Thr Thr Thr Ala Gly Ser Gln Ser Gly Gly Asp 275 280 285

Ala Ser Ser Ala Leu Ala Trp Asn Ala Asp Val Ile His Gln Arg Gly
290 295 300

Gly Gln Thr Ile Asn Gly Thr Leu Arg Ile Asn Asn Thr Leu Thr Ile 305 310 315 320

Ala Ser Gly Gly Ala Asn Ile Thr Gly Thr Val Asn Met Thr Gly Gly 325 330 Tyr Ile Gln Gly Lys Arg Val Val Thr Gln Asn Glu Ile Asp Arg Thr 345 Ile Pro Val Gly Ala Ile Met Met Trp Ala Ala Asp Ser Leu Pro Ser Asp Ala Trp Arg Phe Cys His Gly Gly Thr Val Ser Ala Ser Asp Cys Pro Leu Tyr Ala Ser Arg Ile Gly Thr Arg Tyr Gly Gly Ser Ser Ser 390 395 Asn Pro Gly Leu Pro Asp Met Arg Gly Leu Phe Val Arg Gly Ser Gly Arg Gly Ser His Leu Thr Asn Pro Asn Val Asn Gly Asn Asp Gln Phe 425 Gly Lys Pro Arg Leu Gly Val Gly Cys Thr Gly Gly Tyr Val Gly Glu Val Gln Lys Gln Gln Met Ser Tyr His Lys His Ala Gly Gly Phe Gly Glu Tyr Asp Asp Ser Gly Ala Phe Gly Asn Thr Arg Arg Ser Asn Phe Val Gly Thr Arg Lys Gly Leu Asp Trp Asp Asn Arg Ser Tyr Phe Thr 490 Asn Asp Gly Tyr Glu Ile Asp Pro Ala Ser Gln Arg Asn Ser Arg Tyr 500 Thr Leu Asn Arg Pro Glu Leu Ile Gly Asn Glu Thr Arg Pro Trp Asn 520

Ile Ser Leu Asn Tyr Ile Ile Lys Val Lys Glu
530

<210> 9 <211> 527

<212> PRT

<213> protein p12 of T2 phage

<400> 9

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Lys Phe Asp Pro Thr Asp Thr Asn Phe Pro Pro Glu Ile Thr Asp Val 20 25 30

Gln Ala Ala Ile Ala Ala Ile Ser Pro Ala Gly Val Asn Gly Val Pro 35 40 45

Asp Ala Ser Ser Thr Thr Lys Gly Ile Leu Phe Leu Ala Thr Glu Gln
50 55 60

Glu Val Ile Asp Gly Thr Asn Asn Thr Lys Ala Val Thr Pro Ala Thr

65	WO 2	005/06	2051	70						75					CT/DE 80
Leu	Ala	Thr	Arg	Leu 85	Ser	Tyr	Pro	Asn	Ala 90	Thr	Glu	Ala	Val	Tyr 95	Gly
Leu	Thr	Arg	Tyr 100	Ser	Thr	Asp	Asp	Glu 105	Ala	Ile	Ala	Gly	Val 110	Asn	Asn
Glu	Ser	Ser 115	Ile	Thr	Pro	Ala	Lys 120	Phe	Thr	Val	Ala	Leu 125	Asn	Asn	Val
Phe	Glu 130	Thr	Arg	Val	Ser	Thr 135	Glu	Ser	Ser	Asn	Gly 140	Val	Ile	Lys	Ile
Ser 145	Ser	Leu	Pro	Gln	Ala 150	Leu	Ala	Gly	Ala	Asp 155	Asp	Thr	Thr	Ala	Met 160
Thr	Pro	Leu	Lys	Thr 165	Gln	Gln	Leu	Ala	Val 170	Lys	Leu	Ile	Ala	Gln 175	Ile
Ala	Pro	Ser	Lys 180	Asn	Ala	Ala	Thr	Glu 185	Ser	Glu	Gln	Gly	Val 190	Ile	Gln
Leu	Ala	Thr 195	Val	Ala	Gln	Ala	Arg 200	Gln	Gly	Thr	Leu	Arg 205	Glu	Gly	Tyr
Ala	Ile 210	Ser	Pro	Tyr	Thr	Phe 215	Met	Asn	Ser	Thr	Ala 220	Thr	Glu	Glu	Tyr
Lys 225	Gly	Val	Ile	Lys	Leu 230	Gly	Thr	Gln	Ser	Glu 235	Val	Asn	Ser	Asn	Asn 240
Ala	Ser	Val	Ala	Val 245	Thr	Gly	Ala	Thr	Leu 250	Asn	Gly	Arg	Gly	Ser 255	Thr
Thr	Ser	Met	Arg 260	Gly	Val	Val	Lys	Leu 265	Thr	Thr	Thr	Ala	Gly 270	Ser	Gln
Ser	Gly	Gly 275	Asp	Ala	Ser	Ser	Ala 280	Leu	Ala	Trp	Asn	Ala 285	Asp	Val	Ile
His	Gln 290	Arg	Gly	Gly	Gln	Thr 295	Ile	Asn	Gly	Thr	Leu 300	Arg	Ile	Asn	Asn
Thr 305	Leu	Thr	Ile	Ala	Ser 310	Gly	Gly	Ala	Asn	Ile 315	Thr	Gly	Thr	Val	Asn 320
Met	Thr	Gly	Gly	Tyr 325	Ile	Gln	Gly	Lys	Arg 330	Val	Val	Thr	Gln	Asn 335	Glu
Ile	Asp	Arg	Thr 340	Ile	Pro	Val	Gly	Ala 345	Ile	Met	Met	Trp	Ala 350	Ala	Asp
Ser	Leu	Pro 355	Ser	Asp	Ala	Trp	Arg 360	Phe	Cys	His	Gly	Gly 365	Thr	Val	Ser
Ala	Ser 370	Asp	Cys	Pro	Leu	Tyr 375	Ala	Ser	Arg	Ile	Gly 380	Thr	Arg	Tyr	Gly
Glý 385	Thr	Ser	Ser	Asn	Pro	Gly	Leu	Pro	Asp	Met	Arg	Gly	Leu	Phe	Val 400

Arg Gly Ser Gly Arg Gly Ser His Leu Thr Asn Pro Asn Val Asn Gly

Asn Asp Gln Phe Gly Lys Pro Arg Leu Gly Val Gly Cys Thr Gly Gly 420 425 430

Tyr Val Gly Glu Val Gln Lys Gln Gln Met Ser Tyr His Lys His Ala 435 440 445

Gly Gly Phe Gly Glu Tyr Asp Asp Ser Gly Ala Phe Gly Asn Thr Arg 450 455 460

Arg Ser Asn Phe Val Gly Thr Arg Lys Gly Leu Asp Trp Asp Asn Arg
465 470 475 480

Ser Tyr Phe Thr Asn Asp Gly Tyr Glu Ile Asp Pro Ala Ser Gln Arg 485 490 495

Asn Ser Arg Tyr Thr Leu Asn Arg Pro Glu Leu Ile Gly Asn Glu Thr 500 505 510

Arg Pro Trp Asn Ile Ser Leu Asn Tyr Ile Ile Lys Val Lys Glu 515 520 525

<210 > 10

<211 > 527

<212 > PRT

<213> protein p12 of T4 phage

<400> 10

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Lys Phe Asp Pro Thr Asp Thr Asn Phe Pro Pro Glu Ile Thr Asp Val 20 25 30

His Ala Ile Ala Ile Ser Pro Ala Gly Val Asn Gly Val Pro 35 40 45

Asp Ala Ser Ser Thr Thr Lys Gly Ile Leu Phe Ile Pro Thr Glu Gln 50 55 60

Glu Val Ile Asp Gly Thr Asn Asn Thr Lys Ala Val Thr Pro Ala Thr 65 70 75 80

Leu Ala Thr Arg Leu Ser Tyr Pro Asn Ala Thr Glu Thr Val Tyr Gly
85 90 95

Leu Thr Arg Tyr Ser Thr Asn Asp Glu Ala Ile Ala Gly Val Asn Asn 100 105 110

Glu Ser Ser Ile Thr Pro Ala Lys Phe Thr Val Ala Leu Asn Asn Ala

Phe Glu Thr Arg Val Ser Thr Glu Ser Ser Asn Gly Val Ile Lys Ile 130 135 140

Ser Ser Leu Pro Gln Ala Leu Ala Gly Ala Asp Asp Thr Thr Ala Met 145 150 155 160

Thr Pro Leu Lys Thr Gln Gln Leu Ala Ile Lys Leu Ile Ala Gln Ile 165 170 175

Ala Pro Ser Glu Thr Thr Ala Thr Glu Ser Asp Gln Gly Val Val Gln

Leu	Ala	Thr 195	Val	Ala	Gln	Val	Arg 200	Gln	Gly	Thr	Leu	Arg 205	Glu	Gly	Tyr
Ala	Ile 210	Ser	Pro	Tyr	Thr	Phe 215	Met	Asn	Ser	Ser	Ser 220	Thr	Glu	Glu	Tyr
Lys 225	Gly	Val	Ile	Lys	Leu 230	Gly	Thr	Gln	Ser	Glu 235	Val	Asn	Ser	Asn	Asn 240
Ala	Ser	Val	Ala	Val 245	Thr	Gly	Ala	Thr	Leu 250	Asn	Gly	Arg	Gly	Ser 255	Thr
Thr	Ser	Met	Arg 260	Gly	Val	Val	Lys	Leu 265	Thr	Thr	Thr	Ala	Gly 270	Ser	Gln
Ser	Gly	Gly 275	Asp	Ala	Ser	Ser	Ala 280	Leu	Ala	Trp	Asn	Ala 285	Asp	Val	Ile
Gln	Gln 290	Arg	Gly	Gly	Gln	Ile 295	Ile	Tyr	Gly	Thr	Leu 300	Arg	Ile	Glu	Asp
Thr 305	Phe	Thr	Ile	Ala	Asn 310	Gly	Gly	Ala	Asn	Ile 315	Thr	Gly	Thr	Val	Arg 320
Met	Thr	Gly	Gly	Tyr 325	Ile	Gln	Gly	Asn	Arg 330	Ile	Val	Thr	Gln	Asn 335	Glu
Ile	Asp	Arg	Thr 340	Ile	Pro	Val	Gly	Ala 345	Ile	Met	Met	Trp	Ala 350	Ala	Asp
Ser	Leu	Pro 355	Ser	Asp	Ala	Trp	Arg 360	Phe	Cys	His	Gly	Gly 365	Thr	Val	Ser
Ala	Ser 370	Asp	Cys	Pro	Leu	Tyr 375	Ala	Ser	Arg	Ile	Gly 380	Thr	Arg	Tyr	Gly
Gly 385	Asn	Pro	Ser	Asn	Pro 390	Gly	Leu	Pro	Asp	Met 395	Arg	Gly	Leu	Phe	Val 400
Arg	Gly	Ser	Gly	Arg 405	Gly	Ser	His	Leu	Thr 410	Asn	Pro	Asn	Val	Asn 415	Gly
Asn	Asp	Gln	Phe 420	Gly	Lys	Pro	Arg	Leu 425	Gly	Val	Gly	Cys	Thr 430	Gly	Gly
Tyr	Val	Gly 435	Glu	Val	Gln	Ile	Gln 440	Gln	Met	Ser	Tyr	His 445	Lys	His	Ala
Gly	Gly 450	Phe	Gly	Glu	His	Asp 455	Asp	Leu	Gly	Ala	Phe 460	Gly	Asn	Thr	Arg
Arg 465	Ser	Asn	Phe	Val	Gly 470	Thr	Arg	Lys	Gly	Leu 475	Asp	Trp	Asp	Asn	Arg 480
Ser	Tyr	Phe	Thr	Asn 485	Asp	Gly	Tyr	Glu	Ile 490	Asp	Pro	Glu	Ser	Gln 495	Arg
Asn	Ser	Lys	Tyr 500	Thr	Leu	Asn	Arg	Pro 505	Glu	Leu	Ile	Gly	Asn 510	Glu	Thr
Arg	Pro	Trp 515	Asn	Ile	Ser	Leu	Asn 520	Tyr	Ile	Ile	Lys	Val 525	ГÀ2	Glu	

<210> 11

<211> 518

<212> PRT

<213> protein pl2 of PP01 phage

<400> 11

Met Ser Asn Asn Thr Tyr Gln His Val Ser Asn Glu Ser Lys Tyr Val 1 5 10 15

Lys Phe Asp Pro Val Gly Ser Asn Phe Pro Asp Thr Val Thr Thr Val 20 25 30

Gln Ser Ala Leu Ser Lys Ile Ser Asn Ile Gly Val Asn Gly Ile Pro 35 40 45

Asp Ala Ser Met Glu Val Lys Gly Ile Ala Met Ile Ala Ser Glu Gln 50 55 60

Glu Val Leu Asp Gly Thr Asn Asn Ser Lys Ile Val Thr Pro Ala Thr 65 70 75 80

Leu Ala Thr Arg Leu Leu Tyr Pro Asn Ala Thr Glu Thr Lys Tyr Gly
85 90 95

Leu Thr Arg Tyr Ser Thr Asn Glu Glu Thr Leu Glu Gly Ser Asp Asn 100 105 110

Asn Ser Ser Ile Thr Pro Gln Lys Leu Lys Tyr His Thr Asp Asp Val 115 120 125

Phe Gln Asn Arg Tyr Ser Ser Glu Ser Ser Asn Gly Val Ile Lys Ile 130 135 140

Ser Ser Thr Pro Ala Ala Leu Ala Gly Val Asp Asp Thr Thr Ala Met 145 150 155 160

Thr Pro Leu Lys Thr Gln Lys Leu Ala Ile Lys Leu Ile Ser Gln Ile 165 170 175

Ala Pro Ser Glu Asp Thr Ala Ser Glu Ser Val Arg Gly Val Val Gln 180 185 190

Leu Ser Thr Val Ala Gln Thr Arg Gln Gly Thr Leu Arg Glu Gly Tyr 195 200 205

Ala Ile Ser Pro Tyr Thr Phe Met Asn Ser Val Ala Thr Gln Glu Tyr 210 215 220

Lys Gly Val Ile Arg Leu Gly Thr Gln Ser Glu Ile Asn Ser Asn Leu 225 230 235 240

Gly Asp Val Ala Val Thr Gly Glu Thr Leu Asn Gly Arg Gly Ala Thr 245 250 255

Gly Ser Met Arg Gly Val Val Lys Leu Thr Thr Gln Ala Gly Ile Ala 260 265 270

Pro Glu Gly Asp Ser Ser Gly Ala Leu Ala Trp Asn Ala Asp Val Ile 275 280 285

Asn Thr Arg Gly Gly Gln Thr Ile Asn Gly Ser Leu Asn Leu Asp His

290 295 300

Leu Thr Ala Asn Gly Ile Trp Ser Arg Gly Gly Met Trp Lys Asn Gly 305 310 315 320

Asp Gln Pro Val Ala Thr Glu Arg Tyr Ala Ser Glu Arg Val Pro Val 325 330 335

Gly Thr Ile Met Met Phe Ala Gly Asp Ser Ala Pro Pro Gly Trp Ile $340 \hspace{1cm} 345 \hspace{1cm} 350$

Met Cys His Gly Gly Thr Val Ser Gly Asp Gln Tyr Pro Asp Tyr Arg 355 360 365

Asn Thr Val Gly Thr Arg Phe Gly Gly Asp Trp Asn Asn Pro Gly Ile 370 375 380

Pro Asp Met Arg Gly Leu Phe Val Arg Gly Ala Gly Thr Gly Gly His 385 390 395 400

Ile Leu Asn Gln Arg Gly Gln Asp Gly Tyr Gly Lys Asp Arg Leu Gly 405 410 415

Val Gly Cys Asp Gly Met His Val Gly Gly Val Gln Ala Gln Gln Ile 420 425 430

Ser Tyr His Lys His Ala Gly Ala Trp Gly Glu Asn Gly Asn Asn Arg 435 440 445

Gly Tyr Ala Pro Phe Gly Ala Ser Asn Gly Ser Gly Tyr Leu Gly Asn 450 455

Gly Arg Ser Ala Asp Trp Asp Asn His Leu Phe Phe Thr Asn Asp Gly 465 470 475 480

Phe Glu Met Gly Gly Pro Arg Asp Ser Phe Gly Thr Leu Asn Arg Glu 485 490 495

Gly Leu Ile Gly Tyr Glu Thr Arg Pro Trp Asn Ile Ser Leu Asn Tyr 500 505 510

Ile Ile Lys Ile His Tyr 515

<210> 12

<211> 516

<212> PRT

<213> protein p12 of RB69 phage

<400> 12

Met Ser Asn Asn Thr Tyr Gln His Val Ser Asn Glu Ser Val Tyr Val 1 5 10 15

Glu Phe Asp Pro Thr Gly Ser Asn Phe Asp Ser Ser Ile Thr Asn Val 20 25 30

Gln Ala Ala Leu Ala Ser Ile Ser Ala Tyr Gly Val Lys Gly Val Pro 35 40 45

Asp Ala Ser Glu Ala Glu Lys Gly Val Ile Gln Leu Ala Thr Glu Gln 50 55 60

Glu Val Leu Asp Gly Phe Asn Ser Thr Lys Ala Val Thr Pro Ala Thr 75 Leu Asn Ala Arg Leu Gln Tyr Pro Asn Ala Ser Glu Thr Gln Tyr Gly Val Thr Lys Tyr Ala Thr Gln Glu Glu Ala Ile Ala Gly Thr Leu Asp 105 Thr Val Ser Ile Thr Pro Leu Lys Leu Asn Gln Thr Ile Asp Asn Thr Phe Ser Thr Arg Tyr Ser Thr Glu Thr Thr Asn Gly Val Ile Lys Ile Ala Thr Gln Thr Ala Ala Leu Ala Gly Ser Asp Asp Thr Thr Ala Met Thr Pro Leu Lys Thr Gln Gln Leu Ala Ile Lys Leu Ile Ser Gln Ile 170 Ala Pro Asn Asn Asp Pro Ala Ser Glu Ser Ile Thr Gly Val Val Arg 185 Leu Ala Thr Val Ala Gln Thr Arg Gln Gly Thr Leu Arg Glu Gly Tyr Ala Ile Ser Pro Tyr Thr Phe Met Asn Ser Val Ala Thr Gln Glu Tyr Lys Gly Val Ile Arg Leu Gly Thr Gln Ala Glu Ile Asn Ser Asn Leu Gly Asp Val Ala Val Thr Gly Glu Thr Leu Asn Gly Arg Gly Ala Thr 250 245 Gly Ser Met Arg Gly Val Val Lys Leu Thr Thr Gln Ala Gly Val Ala 265 Pro Glu Gly Asp Ser Ser Gly Ala Leu Ala Trp Asn Ala Asp Val Ile Asn Thr Arg Gly Gly Gln Thr Ile Asn Gly Ser Leu Asn Leu Asp His 295 Leu Thr Ala Asn Gly Ile Trp Ser Arg Gly Gly Met Trp Lys Asn Gly Asp Gln Pro Val Ala Thr Glu Arg Tyr Ala Ser Glu Arg Val Pro Val Gly Thr Ile Gln Met Phe Ala Gly Asp Ser Ala Pro Pro Gly Trp Val Leu Cys His Gly Gly Thr Ile Ser Gly Asp Gln Phe Pro Asp Tyr Arg Asn Val Val Gly Thr Arg Phe Gly Gly Asp Trp Asn Asn Pro Gly Ile 370 Pro Asp Met Arg Gly Leu Phe Val Arg Gly Ala Gly Thr Gly Ser His

42

Ile Leu Asn Asn Arg Gly Gln Asp Gly Tyr Gly Lys Asp Arg Leu Gly

405 410 41.

Val Gly Cys Asp Gly Met His Val Gly Gly Val Gln Ala Gln Gln Met
420 425 430

Ser Tyr His Lys His Ala Gly Gly Trp Gly Glu Phe Gln Arg His Glu 435 440 445

Ala Pro Phe Gly Ala Ser Val Tyr Gln Gly Tyr Leu Gly Thr Arg Lys 450 460

Tyr Ser Asp Trp Asp Asn Ala Ser Tyr Phe Thr Asn Asp Gly Phe Glu 465 470 475 480

Leu Gly Gly His Arg Asp Ala Thr Gly Thr Leu Asn Arg Glu Gly Leu 485 490 495

Ile Gly Tyr Glu Thr Arg Pro Trp Asn Ile Ser Leu Asn Tyr Ile Ile
500 505 510

Lys Val His Tyr 515

<210> 13

<211> 516

<212> PRT

<213> protein pl2 of AR1 phage

<400> 13

Met Ser Asn Asn Thr Tyr Gln His Val Ser Asn Glu Ser Lys Tyr Val 1 5 10 15

Lys Phe Asp Pro Thr Gly Ser Asn Phe Pro Asp Thr Val Thr Thr Val 20 25 30

Gln Ser Ala Leu Ser Lys Ile Ser Asn Ile Gly Val Asn Gly Ile Pro 35 40 45

Asp Ala Thr Met Glu Val Lys Gly Ile Ala Met Ile Ala Ser Glu Gln 50 55 60

Glu Val Leu Asp Gly Thr Asn Asn Ser Lys Ile Val Thr Pro Ala Thr 65 70 75 80

Leu Ala Thr Arg Leu Leu Tyr Pro Asn Ala Thr Glu Thr Lys Tyr Gly 85 90 95

Leu Thr Arg Tyr Ser Thr Asn Glu Glu Thr Leu Glu Gly Ser Asp Asn 100 105 110

Asn Ser Ser Ile Thr Pro Gln Lys Leu Lys Tyr His Thr Asp Asp Val 115 120 125

Phe Gln Asn Arg Tyr Ser Ser Glu Ser Ser Asn Gly Val Ile Lys Ile 130 135 140

Ser Ser Thr Pro Ala Ala Leu Ala Gly Val Asp Asp Thr Thr Ala Met 145 150 155 160

Thr Pro Leu Lys Thr Gln Lys Leu Ala Ile Lys Leu Ile Ser Gln Ile 165 170 175

Ala Pro Ser Glu Asp Thr Ala Ser Glu Ser Val Arg Gly Val Val Gln Leu Ser Thr Val Ala Gln Thr Arg Gln Gly Thr Leu Arg Glu Gly Tyr Ala Ile Ser Pro Tyr Thr Phe Met Asn Ser Val Ala Thr Gln Glu Tyr Lys Gly Val Ile Arg Leu Gly Thr Gln Ser Glu Ile Asn Ser Asn Leu Gly Asp Val Ala Val Thr Gly Gly Thr Leu Asn Gly Arg Gly Ala Thr Gly Ser Met Arg Gly Val Val Lys Leu Thr Thr Gln Ala Gly Ile Ala 265 Pro Glu Gly Asp Ser Ser Gly Ala Leu Ala Trp Asn Ala Asp Val Ile 280 Asn Thr Arg Gly Gly Gln Thr Ile Asn Gly Ser Leu Asn Leu Asp His 295 Leu Thr Ala Asn Gly Ile Trp Ser Arg Gly Gly Met Trp Lys Asn Gly 310 315 Asp Gln Pro Val Ala Thr Glu Arg Tyr Ala Ser Glu Arg Val Pro Val Gly Thr Ile Met Met Phe Ala Gly Asp Ser Ala Pro Pro Gly Trp Ile Met Cys His Gly Gly Thr Val Ser Gly Asp Gln Tyr Pro Asp Tyr Arg Asn Thr Val Gly Thr Arg Phe Gly Gly Asp Trp Asn Asn Pro Gly Ile 375 Pro Asp Met Arg Gly Leu Phe Val Arg Gly Ala Gly Thr Gly His Ile Leu Asn Gln Arg Gly Gln Asp Gly Tyr Gly Lys Asp Arg Leu Gly Val Gly Cys Asp Gly Met His Val Gly Gly Val Gln Ala Gln Met 420 Ser Tyr His Lys His Ala Gly Gly Trp Gly Glu Tyr Asn Arg Ser Glu Gly Pro Phe Gly Ala Ser Val Tyr Gln Gly Tyr Leu Gly Thr Arg Lys Tyr Ser Asp Trp Asp Asn Ala Ser Tyr Phe Thr Asn Asp Gly Phe Glu Leu Gly Gly Pro Arg Asp Ala Leu Gly Thr Leu Asn Arg Glu Gly Leu Ile Gly Tyr Glu Thr Arg Pro Trp Asn Ile Ser Leu Asn Tyr Ile Ile 505

Lys Ile His Tyr

515

<210> 14

<211> 527

<212> PRT <213> protein p12 of K3 phage

<400> 14

Met Ser Asn Asn Thr Tyr Gln His Val Ser Asn Glu Ser Arg Tyr Val 1 5 10 15

Lys Phe Asp Pro Thr Asp Thr Asn Phe Pro Pro Glu Ile Thr Asp Val 20 25 30

Gln Ala Ala Ile Ala Ile Ser Pro Ala Gly Val Asn Gly Val Pro 35 40 45

Asp Ala Ser Ser Thr Thr Lys Gly Ile Leu Phe Leu Ala Thr Glu Gln 50 55 60

Glu Val Ile Asp Gly Thr Asn Asn Thr Lys Ala Val Thr Pro Ala Thr 65 70 75 80

Leu Ala Thr Arg Leu Ser Tyr Pro Asn Ala Thr Glu Thr Val Tyr Gly
85 90 95

Leu Thr Arg Tyr Ser Thr Asn Asp Glu Ala Ile Ala Gly Val Asn Asn 100 105 110

Glu Ser Ser Ile Thr Pro Ala Lys Phe Thr Val Ala Leu Asn Asn Ala 115 120 125

Phe Glu Thr Arg Val Ser Thr Glu Ser Ser Asn Gly Val Ile Lys Ile 130 135 140

Ser Ser Leu Pro Gln Ala Leu Ala Gly Ala Asp Asp Thr Thr Ala Met 145 150 155 160

Thr Pro Leu Lys Thr Gln Gln Leu Ala Ile Lys Leu Ile Ala Gln Ile 165 170 175

Ala Pro Ser Glu Thr Thr Ala Thr Glu Ser Asp Gln Gly Val Val Gln 180 185 190

Leu Ala Thr Val Ala Gln Val Arg Gln Gly Thr Leu Arg Glu Gly Tyr 195 200 205

Ala Ile Ser Pro Tyr Thr Phe Met Asn Ser Ser Ala Thr Glu Glu Tyr 210 220

Lys Gly Val Ile Lys Leu Gly Thr Gln Ser Glu Val Asn Ser Asn Asn 225 230 235 240

Ala Ser Val Ala Val Thr Gly Ala Thr Leu Asn Gly Arg Gly Ser Thr 245 250 255

Thr Ser Met Arg Gly Val Val Arg Leu Thr Thr Thr Ala Gly Ser Gln 260 265 270

Ser Gly Gly Asp Ala Ser Ser Ala Leu Ala Trp Asn Ala Asp Val Ile 275 280 285

His Gln Arg Gly Gln Thr Ile Asn Gly Thr Leu Arg Ile Asn Asn Thr Leu Thr Ile Ala Ser Gly Gly Ala Asn Ile Thr Gly Thr Val Asn 310 315 Met Thr Gly Gly Tyr Ile Gln Gly Lys Arg Val Val Thr Gln Asn Glu 325 330 Ile Asp Arg Thr Ile Pro Val Gly Ala Ile Met Met Trp Ala Ala Asp Ser Leu Pro Ser Asp Ala Trp Arg Phe Cys His Gly Gly Thr Val Ser Ala Ser Asp Cys Pro Leu Tyr Ala Ser Arg Ile Gly Thr Arg Tyr Gly Gly Ser Ser Ser Asn Pro Gly Leu Pro Asp Met Arg Gly Leu Phe Val 390 395 Arg Gly Ser Gly Arg Gly Ser His Leu Thr Asn Pro Asn Val Asn Gly 410 Asn Asp Gln Phe Gly Lys Pro Arg Leu Gly Val Gly Cys Thr Gly Gly 425 Tyr Val Gly Glu Val Gln Lys Gln Gln Met Ser Tyr His Lys His Ala Gly Gly Phe Gly Glu Trp Asp Asp Ser Gly Ala Phe Gly Asn Thr Arg Arg Ser Asn Phe Val Gly Thr Arg Lys Gly Leu Asp Trp Asp Asn Arg 465 470 Ser Tyr Phe Thr Asn Asp Gly Tyr Glu Ile Asp Pro Ala Ser Gln Arg 490 Asn Ser Arg Tyr Thr Leu Asn Arg Pro Glu Leu Ile Gly Asn Glu Thr 505 500 Arg Pro Trp Asn Ile Ser Leu Asn Tyr Ile Ile Lys Val Lys Glu 520 515 <210> 15 <211> 516 <212> PRT

<213> protein p12 of RB32-33 phage

<400> 15

Met Ser Asn Asn Thr Tyr Gln His Val Ser Asn Glu Ser Lys Tyr Val 1 5 10 15

Lys Phe Asp Pro Val Gly Ser Asn Phe Pro Asp Thr Val Thr Thr Val 20 25 30

Gln Ser Ala Leu Ser Lys Ile Ser Asn Ile Gly Val Asn Gly Ile Pro 35 40 45

Asp Ala Thr Met Glu Val Lys Gly Ile Ala Met Ile Ala Ser Glu Gln 50 60

Glu Val Leu Asp Gly Thr Asn Asn Ser Lys Ile Val Thr Pro Ala Thr 70 Leu Ala Thr Arg Leu Leu Tyr Pro Asn Ala Thr Glu Thr Lys Tyr Gly 90 Leu Thr Arq Tyr Ser Thr Asn Glu Glu Thr Leu Glu Gly Ser Asp Asn Asn Ser Ser Ile Thr Pro Gln Lys Leu Lys Tyr His Thr Asp Asp Val Phe Gln Asn Arg Tyr Ser Ser Glu Ser Ser Asn Gly Val Ile Lys Ile 135 Ser Ser Thr Pro Ala Ala Leu Ala Gly Val Asp Asp Thr Thr Ala Met 150 Thr Pro Leu Lys Thr Gln Lys Leu Ala Ile Lys Leu Ile Ser Gln Ile 170 Ala Pro Ser Glu Asp Thr Ala Ser Glu Ser Val Arg Gly Val Val Gln 180 Leu Ser Thr Val Ala Gln Thr Arg Gln Gly Thr Leu Arg Glu Gly Tyr 200 Ala Ile Ser Pro Tyr Thr Phe Met Asn Ser Val Ala Thr Gln Glu Tyr 215 Lys Gly Val Ile Arg Leu Gly Thr Gln Ser Glu Ile Asn Ser Asn Leu 235 Gly Asp Val Ala Val Thr Gly Glu Thr Leu Asn Gly Arg Gly Ala Thr Ser Ser Met Arg Gly Val Val Lys Leu Thr Thr Gln Ala Gly Ile Ala Pro Glu Gly Asp Gly Ser Gly Ala Leu Ala Trp Asn Ala Asp Val Ile Asn Thr Arg Gly Gly Gln Thr Ile Asn Gly Ser Leu Asn Leu Asp His Leu Thr Ala Asn Gly Ile Trp Ser Arg Gly Gly Met Trp Lys Asn Gly 310 Asp Gln Pro Val Ala Thr Glu Arg Tyr Ala Ser Glu Arg Val Pro Val 330 Gly Thr Ile Met Met Phe Ala Gly Asp Ser Ala Pro Pro Gly Trp Ile Met Cys His Gly Gly Thr Val Ser Gly Asp Gln Tyr Pro Asp Tyr Arg Asn Thr Val Gly Ala Arg Phe Gly Gly Asp Trp Asn Asn Pro Gly Ile Pro Asp Met Arg Gly Leu Phe Val Arg Gly Ala Gly Thr Gly Gly His 390 385

IleLeuAsnGlnArg
405GlyAsp
GlyGlyTyr
410GlyLysAsp
GlyArg
410GlyValGlyCysAsp
420GlyMetHis
GlyValGlyValGlnAlaGlnMetSerTyrHis
435LysHis
AlaAlaGlyTrp
445GlyTyrGluTyrGlnTyrGlnArgHisGluAlaProPheAspAspAspAlaSerTyrPheThr
475AspAspGlyPheGluAspGlyProArgAspAlaLeuGlyThrLeuAspAspGlyPheGlyAspGlyTyrGlyThrArgProTrpAspLeuAspLeuAspTyrIleIleAspTyrGlyThrArgProTrpAspIleSerLeuAspTyrIleIle

Lys Ile His Tyr 515